# Water Management Plan

United States Environmental Protection Agency
Region 10

Manchester Environmental Laboratory
7411 Beach Drive East
Port Orchard, WA 98366

15 August 2005

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EPA

**United States Environmental Protection Agency**
**Region 10**
**Manchester Environmental Laboratory**

# Water Management Plan

Approved by:

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FOR Linda Anderson-Carnahan, Director, Manchester Environmental Laboratory Date 8/17/05

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## 1.0 EPA'S STATEMENT OF PRINCIPLES ON EFFICIENT WATER USE

In order to meet the needs of existing and future populations and ensure that habitats and ecosystems are protected, the nation's water must be sustainable and renewable. Sound water resource management, which emphasizes careful, efficient use of water, is essential to achieve these objectives.

Efficient water use can have major environmental, public health, and economic benefits by helping to improve water quality, maintain aquatic ecosystems, and protect drinking water resources. As we face increasing risks to ecosystems and their biological integrity, the inextricable link between water quality and water quantity becomes more important. Water efficiency is one way of addressing water quality and quantity goals. The efficient use of water can prevent pollution by reducing wastewater flows, recycling process water, reclaiming wastewater, and using less energy.

EPA recognizes that regional, state, and local differences exist regarding water quality, quantity, and use. Differences in climate, geography, and local requirements influence the water efficiency programs applicable to specific facilities. Therefore, EPA is establishing facility-specific Water Management Plans to promote the efficient use of water and meet the water conservation requirements under Executive Order 13123, Greening the Government Through Efficient Energy Management.

This Water Management Plan has been established to document and promote the efficient use of water at the Region 10 Manchester Environmental Laboratory. The plan is organized according to the Federal Energy Management Program (FEMP) Facility Water Management Planning Guidelines under Executive Order 13123.

## 2.0 FACILITY DESCRIPTION

The Manchester Environmental Laboratory provides physical, chemical, biological, and microbiological analyses in support of the following EPA programs: air, surface water, drinking water, Superfund, pesticides and hazardous materials. The laboratory measures contaminants and pollution effects in a variety of media in support of criminal enforcement, civil enforcement, site assessment, remedial investigation, ecosystem monitoring, and public health initiatives. In addition to analytical support, Manchester serves as a technical reference laboratory in such areas as organic and inorganic chemistry, and environmental microbiology.

In addition to EPA Region 10 personnel and technical support contractors, the laboratory houses the State of Washington Department of Ecology environment laboratory and its staff.

The laboratory is located along the western shore of Puget Sound across from Seattle, approximately 2 miles north of Manchester, Washington. The lab, situated on 17.5 acres adjacent to Manchester State Park, is owned and operated by EPA. The main laboratory building was completed and occupied in 1979, and a major new wing for metal and microbiological analyses was added in 2002. The main laboratory building primarily consists of analytical laboratory space, with office space for approximately 14 people. Most EPA and Washington DOE staff

have their offices in a South Office Building (built in 1987) attached to the main laboratory by a connecting corridor. Region 10 Environmental Services Assistance Team (ESAT) contractor staff occupy a North Office Building, added in the early 1990's. Other support buildings located on the site include a surge tank building for the incoming water supply, wastewater neutralization building, west annex that contains conference rooms and a library, microbalance environmental building, Field Analytical Support Program (FASP) trailer, garage, warehouse, boat shed, wet lab (used for analytical chemistry swing space when main laboratory spaces are renovated), and a field trailer. The warehouse and wet lab are renovated World War II era structures that predate the laboratory. The other support buildings were built after EPA occupied the site. All totaled, the laboratory complex contains approximately 71,698 square feet of conditioned space.

## 3.0 FACILITY WATER MANAGEMENT GOALS

The water management goals of the Manchester Environmental Laboratory are achieved through the implementation of an Environmental Management System (EMS). The EMS has been established and implemented consistent with the laboratory environmental management policy. The laboratory environmental policy statement, as well as objectives and targets related to water conservation, are provided below.

### Environmental Management Policy

The Manchester Environmental Laboratory is home to the USEPA Region 10 Laboratory, the State of Washington Department of Ecology Laboratory, and the USEPA Region 10 Environmental Services Assistance Team, along with associated support staff. The goal of the employees of the Manchester Environmental Laboratory is to make our air cleaner, our water purer, and our land better protected from contamination and the impacts of human development. The employees of the Manchester Environmental Laboratory work toward this goal by applying science in support of our media programs. To accomplish this task, we maintain a fully equipped laboratory to produce physical, chemical, and biological data for environmental decision-making. Since laboratories themselves can be substantial sources of pollution and hazardous waste production, the employees of this laboratory commit to the following environmental management policy:

Compliance with Relevant Laws:
We will comply fully with the letter and the spirit of all applicable federal, state, and local environmental legislation and regulatory requirements. Where existing laws and regulations are not adequate to assure protection of human health, safety, and the environment, we will establish and meet our own health, safety, and environmental standards. To sustain this commitment, the requirements of our Environmental Management System will apply to all activities and employees and we will implement programs and procedures to assure compliance. We will provide appropriate environmental training and educate employees to be environmentally responsible on the job and at home.

Pollution Prevention:
We will minimize risk and protect our employees and the community in which we operate by employing safe technologies and operating procedures in both routine and emergency conditions.

We will minimize the amount and toxicity of waste generated and will ensure the safe treatment and disposal of waste. We will seek to use energy more efficiently throughout our operations. We will consider environmental factors and full acquisition, use, and disposal costs when making planning, purchasing, and operating decisions.

Communication:
We will communicate and reinforce our commitment to health, safety, and environmental quality to our employees, vendors, customers, other government entities, and the community in which we operate. We will solicit their input in meeting our goals and will offer them assistance in meeting their goals. We will work cooperatively with others to further common environmental objectives.

Continual Improvement:
We will seek opportunities to improve our adherence to these principles of environmental management and will periodically report our progress to the public. Above all, Manchester Laboratory employees will strive to continuously improve our efforts to create a cleaner and safer environment.

### EMS Water Conservation Objectives

The Manchester Environmental Laboratory has identified the reduction of water consumption as an environmental objective. With respect to that objective, the Laboratory has established a target of reducing potable water consumption per full time equivalent employee (FTE) by 5 percent over base year 2000. The target date for completion of the 5 percent reduction is 2005. Base year 2000 potable water consumption was 2,912 cubic feet per FTE (21,780 gallons per FTE).

## 4.0 UTILITY INFORMATION

### Contact Information

Potable water supply is provided by:

Manchester Water District
P.O. Box 98
Manchester, WA 98353

360-871-0500

Sewer service is provided by:

Kitsap County Public Works
614 Division Street (MS-27)
Port Orchard, WA 98366

360-337-7127

**Water Rate Schedule**

Water service is billed every two months using a tiered rate structure, provided in Table 1.

**Table 1**
**Water Use Rate Structure**
**(Effective 01 September 2002)**

| Bi-monthly amount | Rate per 100 cubic feet (ccf) |
|---|---|
| Base Rate | $22.50 (flat rate) |
| 0 to 8 ccf | $1.20 |
| 9 to 30 ccf | $1.60 |
| 31 to 60 ccf | $2.40 |
| over 60 ccf | $3.00 |

**Sewer Rate Schedule**

Sewer service is billed based on water consumption for the prior year. At the end of the calendar year, water use information for the year is provided by Manchester Water District to Kitsap County Sewer District. The Sewer district prepares monthly sewer bills based on the prior year annual consumption, divided by 12 months. Sewer service is based on a rate of $0.051 per cubic foot ($5.10 per ccf, $6.82 per 1000 gallons), with a minimum monthly charge of $46.92 for each metered location.

**Payment Office**

EPA Region 10, Regional Office
OMP 146
1200 6th Avenue
Seattle, WA 98101

Point of Contact:
Jean Alexander 206-553-2114

## 5.0 FACILITY INFORMATION

The Manchester Environmental Laboratory complex contains a mixed use of laboratory, office, and storage space. The main laboratory, wet laboratory and FASP buildings contain primarily laboratory space, configured to conduct bench-scale analyses of environmental samples for organic, inorganic, and biological constituents. The north office building, south office building, and west annex building primarily contain offices and meeting rooms. The other on-site

buildings provide storage and support functions. Water is used for mechanical systems, sanitary needs, and laboratory processes. Additional details on facility water use are provided in the following sections.

## Major Water Using Processes

Estimates of potable water consumption by major use area are provided in Table 2. These data reflect average facility water use billed in calendar year 2004, corresponding to the metered period between December 2003 and November 2004.

**Table 2**

**Region 10 Manchester Environmental Laboratory Major Water Using Processes**

| Major Process | 2004 Consumption (gallons) | Percent of Total | Comments |
|---|---|---|---|
| **Main Laboratory** (specific process flows listed below) | 876,715 | 74.8 | Metered total |
| Eyewash flushing | 22,000 | 1.9 | Laboratory eye wash study. Flow reduced by 75% beginning in December 2004. |
| Autoclave tempering water | 20,000 | 1.7 | Laboratory autoclave study |
| Cooling tower make-up | 210,000 | 17.9 | Engineering estimate |
| Laboratory water use | 277,000 | 23.6 | Extrapolated metered discharge flow rate |
| RO System #1 reject stream | 34,000 | 2.9 | Engineering estimate |
| RO System #2 reject stream | 125,000 | 10.7 | Engineering estimate |
| Main laboratory and south office building sanitary water and other miscellaneous uses. | 188,715 | 16.1 | Calculated as remaining difference from metered total |
| **North office building** | 54,226 | 4.6 | Metered total |
| **Warehouse** | 51,391 | 4.4 | Metered total |
| **Wet lab** | 137,492 | 11.7 | Metered total |
| **West annex/neutralization** | 51,586 | 4.4 | Metered total |
| **TOTAL** | **1,171,410** | **100** | **Sum of metered totals. 876,715 + 54,226 + 51,391 +137,492 + 51,586 = 1,171,410** |

Additional detail on assumptions and calculations supporting these water use estimates are provided in Appendix A. Total 2004 potable water use was 156,595 cubic feet (1,171,410 gallons). Based on 72 FTE in 2004, this corresponds to 2,175 cubic feet per FTE, a 25 percent reduction from the year 2000 baseline.

## Measurement Devices

Incoming city water is supplied through five meters, listed on Table 3.

**Table 3**
**City Water Supply Meters**

| Meter Designation | Meter Number | Account Number |
|---|---|---|
| Main Laboratory | 1647 | 001477 |
| North Office | 614 | 003311 |
| Warehouse | 191 | 005066 |
| West Annex | 2781 | 001478 |
| Wet Lab | 680 | 003315 |

All meters are located in below grade meter boxes adjacent to the building associated with the meter designation.

Flow totalizing meters are installed on the water supply to RO System #1, on the permeate line from RO System #2, and on the make up line to the steam boilers in the new wing mechanical room. There is also a meter on the water line from the wet lab to the EPA dock. Discharge flow of laboratory wastewater is metered in the neutralization building. Under this plan, meters will also be installed on the cooling tower make-up line, and the make-up line for the steam boilers in the original laboratory main mechanical room. Totals from the existing and planned meters will be recorded monthly by the operations and maintenance contractor and reported to the Facility Manager. Unexpected changes in any of these metered usage rates will be investigated and resolved.

## Shut-off Valves

Shut-off valves for the main laboratory water supply is located in the main mechanical room. Shut-off valves for the other metered water supply lines are located in the respective meter boxes for each supply.

## Occupancy and Operating Schedules

Approximately 72 employees work at the Manchester Environmental Laboratory. The laboratory operates on a flex time schedule and is typically occupied between 6:00 a.m. and 6:00 p.m., Monday through Friday.

## 6.0 BEST MANAGEMENT PRACTICE SUMMARY AND STATUS

FEMP has identified Water Efficiency Improvement Best Management Practices (BMPs) in 10 possible areas. Implementation of BMPs in four or more areas are required under FEMP guidance. The Manchester Environmental Laboratory has adopted and will maintain BMPs in six of the 10 areas, as checked below:

- ✓ Public Information and Education Programs
- ✓ Distribution System Audits, Leak Detection, and Repair
- ✓ Water-Efficient Landscape
- ❑ Toilets and Urinals
- ❑ Faucets and Showerheads
- ✓ Boiler/Steam Systems
- ✓ Single-Pass Cooling Systems
- ❑ Cooling Tower Systems
- ✓ Miscellaneous High Water-Using Processes
- ❑ Water Reuse and Recycling

Additional information related to each BMP area is provided in the following sections.

**Public Information and Education Programs (BMP #1)**

The Manchester Environmental Laboratory promotes water conservation and awareness using the EPA laboratory "Every Drop Counts" water conservation poster series. Conservation posters are displayed in prominent locations throughout the laboratory. In addition, employees have been educated on water and other resource conservation topics through the implementation of the laboratory EMS. Water conservation is specifically targeted under the laboratory EMS. In view of this objective, the laboratory management team will maintain and promote water conservation awareness though posting information and e-mail reminders. Laboratory staff also respond to citizen requests to speak at public forums on water conservation and other environmental topics.

**Distribution System Audits, Leak Detection, and Repair (BMP #2)**

Facility staff are trained to report leaks and malfunctioning water-using equipment to the Facility Manager. Any problems or leaks identified are addressed immediately. Service calls are logged, along with the date corrected, and tracked in a weekly operations and maintenance (O&M) report. In addition, the O&M contractor performs a daily visual inspection of the building mechanical rooms and corridors.

A screening level system review was conducted in June 2005 and known water uses account for greater than 90 percent of water consumption.

## Water-Efficient Landscape (BMP #3)

Irrigation is not used to maintain the facility landscape. Facility grounds are covered with wild grasses and flowers which go dormant during dry periods, and are naturally restored when precipitation occurs. A minor amount of water is used to hand water flower planters adjacent to the building during dry periods.

## Toilets and Urinals

An inventory of sanitary fixtures is provided in Table 4. Fixtures installed as part of the new laboratory wing meet current federal standards for water-efficient sanitary fixtures (1.6 gallons per flush (gpf) or less for toilets and 1.0 gpf or less for urinals). The majority of the toilets and urinals were installed in the late 1970's or sometime during the 1980's and do not meet current water-efficient design standards. The laboratory is investigating whether it would be cost effective and practical to retrofit some of the older toilets and urinals with water-efficient designs, particularly in the original restrooms in the main laboratory and the south office building.

**Table 4**

**Sanitary Fixture Inventory**

| Fixture | Flow Rate | Quantity |
|---|---|---|
| Toilets | 3.5 gpf (estimate) | 10 |
| | 1.6 gpf | 8 |
| Urinals | 2.0 gpf (estimate) | 2 |
| | 1.0 gpf | 2 |
| Lavatory Sinks | Unknown (>2.0 gpm) | 11 |
| | 2.0 gpm | 4 |
| Showers | Unknown (>2.5 gpm) | 2 |
| | 2.5 gpm | 2 |

BMP credit is not claimed at this time, pending conversion of the toilets and urinals in the main laboratory and south office building to water-efficient design standards.

## Faucets and Showerheads

Table 4 provides an inventory of sanitary fixtures including lavatory faucets and showerheads. Faucets and showerheads installed in the new laboratory wing meet water-efficient design standards. The remainder of the faucets and showerheads are original equipment installed in the late 1970's and throughout the 1980's, and do not appear to have flow restrictors.

Water pressure is maintained at approximately 60 pounds per square inch, within the range needed for efficient faucet and showerhead operation.

BMP credit is not claimed at this time, pending installation of flow restrictors to limit lavatory faucet flow to 2.2 gallons per minute (gpm) or less (1.0 gpm is recommended) and showerheads to limit flow to 2.5 gpm or less.

**Boiler/Steam Systems (BMP#4)**

The laboratory is equipped with four steam boilers, two in the original main laboratory mechanical room and two in the mechanical room for the new wing. Steam is supplied for building heat, production of domestic hot water, and direct steam humidification. Steam condensate is collected and returned to the boilers. A small quantity of steam is blown down from the boilers for 10 seconds, two times per week as a preventative maintenance measure. The boiler water systems are monitored and maintained once per month under a service contract to prevent scale and corrosion and optimize condensate reuse. Boiler water parameters such as phosphorous, chloride, and conductivity are monitored and controlled through periodic testing and chemical treatment.

**Single-Pass Cooling (BMP #5)**

No single-pass cooling is used. All laboratory equipment cooling needs are supplied by point of use, air-cooled chiller units. Compressor cooling for constant temperature rooms is supplied by water recirculated through a cooling tower, installed in 1999. All uses of single-pass cooling have been eliminated.

**Cooling Tower Systems**

The laboratory is equipped with a small cooling tower rated at 29 tons. This cooling tower supplies re-circulated chilled water for compressor units supplying refrigeration to constant temperature rooms. Currently, the cooling tower is not operated with a control system. Dissolved solids are prevented from building up in the cooling water loop by operating the cooling tower with a continuous overflow of approximately 0.5 liters per minute. The laboratory plans to install a cooling tower make-up water meter, conductivity-based blowdown controller, and chemical treatment system to provide more accurate control of this blowdown.

BMP status is not claimed in this area at this time, pending installation of the blowdown control system.

**Miscellaneous High Water-Using Processes (BMP #6)**

As part of the laboratory EMS development and implementation, laboratory staff have carefully examined water use associated with laboratory systems. Two systems targeted for savings were autoclaves and flushing of the laboratory eye washes. Autoclaves use cooling water to temper steam condensate discharged from the autoclave to the laboratory drain. The autoclaves at the Manchester Environmental Laboratory are designed to discharge cooling water whenever the autoclave is in the “on” position. By changing laboratory practice with respect to maintaining the

autoclaves in “standby” rather than “on” mode, the laboratory has been able to reduce autoclave cooling water use by 75 percent, from 80,000 to 20,000 gallons per year. Further savings may be achieved by retrofitting the autoclave with a temperature sensor that would control cooling water flow so it is only discharged when needed to cool condensate.

In consultation with EPA safety and health staff, the eye wash flush frequency has been reduced from once per week to once per month. This change, implemented in December 2004, is estimated to reduce eye wash flush water consumption from 22,000 gallons to 5,000 gallons per year.

BMP credit is claimed in this area in recognition of the changes in operating procedures made to conserve water.

**Water Reuse and Recycling**

No BMP credit is claimed in this area.

## 7.0 DROUGHT CONTINGENCY PLAN

Water shortages are uncommon in Manchester due to an abundant ground water supply. The Manchester Water District does not have an official water management plan specifically for droughts, but it does have a general emergency action plan, which may be implemented if a drought or other water shortage occurs.

In the event that voluntary or mandatory water consumption reductions are instituted by the Manchester Water District, the Manchester Environmental Laboratory will form a task force of facility and operating personnel to identify and implement modifications to laboratory operations to achieve additional specified reductions in water consumption.

## 8.0 COMPREHENSIVE PLANNING

The Facility Manager will ensure that water supply, wastewater generation, and water efficiency BMPs are taken into account during the initial stages of planning and design for any facility renovations or new construction. These factors will also be considered prior to the purchase and installation of any equipment that would measurably change facility water consumption.

## 9.0 OPPORTUNITIES FOR FURTHER WATER CONSERVATION

The Manchester Environmental Laboratory is considering the following projects to achieve additional reductions in water use:

1) **Install Tempering Water Control Valve on Autoclave.** A tempering water control valve will be installed on the autoclave, to further restrict

tempering water flow to only those periods when condensate above 140 °F is being discharged. At an installed cost of $1,000 to $1,500, the unit is estimated to save approximately 15,000 gallons per year, for annual savings of $160 at current water and sewer rates. Simple payback would be 6 to 9 years.

2) **Install Cooling Tower Blowdown Controller and Make-up Water Flow Meter.** The laboratory will install a controller that will regulate cooling tower blowdown flow based on conductivity. This upgrade will also include a make-up water flow meter to measure cooling tower water consumption. Specific water savings can not be estimated from available data. However, this improvement will eliminate a constant discharge flow from the cooling tower, and provide better operational control.

3) **Upgrade Toilets and Urinals.** The laboratory will consider upgrading toilets and urinals in the main laboratory and south office building to current water-efficient standards (1.6 gallons per flush for toilets and 1.0 gallon per flush, or lower, for urinals). Up to 6 toilets and 2 urinals could be upgraded. At an installed cost of $500 per fixture, simple payback is estimated to be 6 years at current water and sewer rates. Upgrades are estimated to save 60,000 gallons and $700 per year. If urinals are upgraded, ultra-low flow (0.5 gpf) or no-flush designs will be considered.

4) **Install Lavatory Faucet Flow Restrictors and Low-Flow Showerheads.** Faucet flow restrictors (1 gpm recommended) and low-flow showerheads can be installed for a few dollars each. The faucet flow restrictors are estimated to save 26,000 gallons and $280 per year, and provide payback in about 1 year.

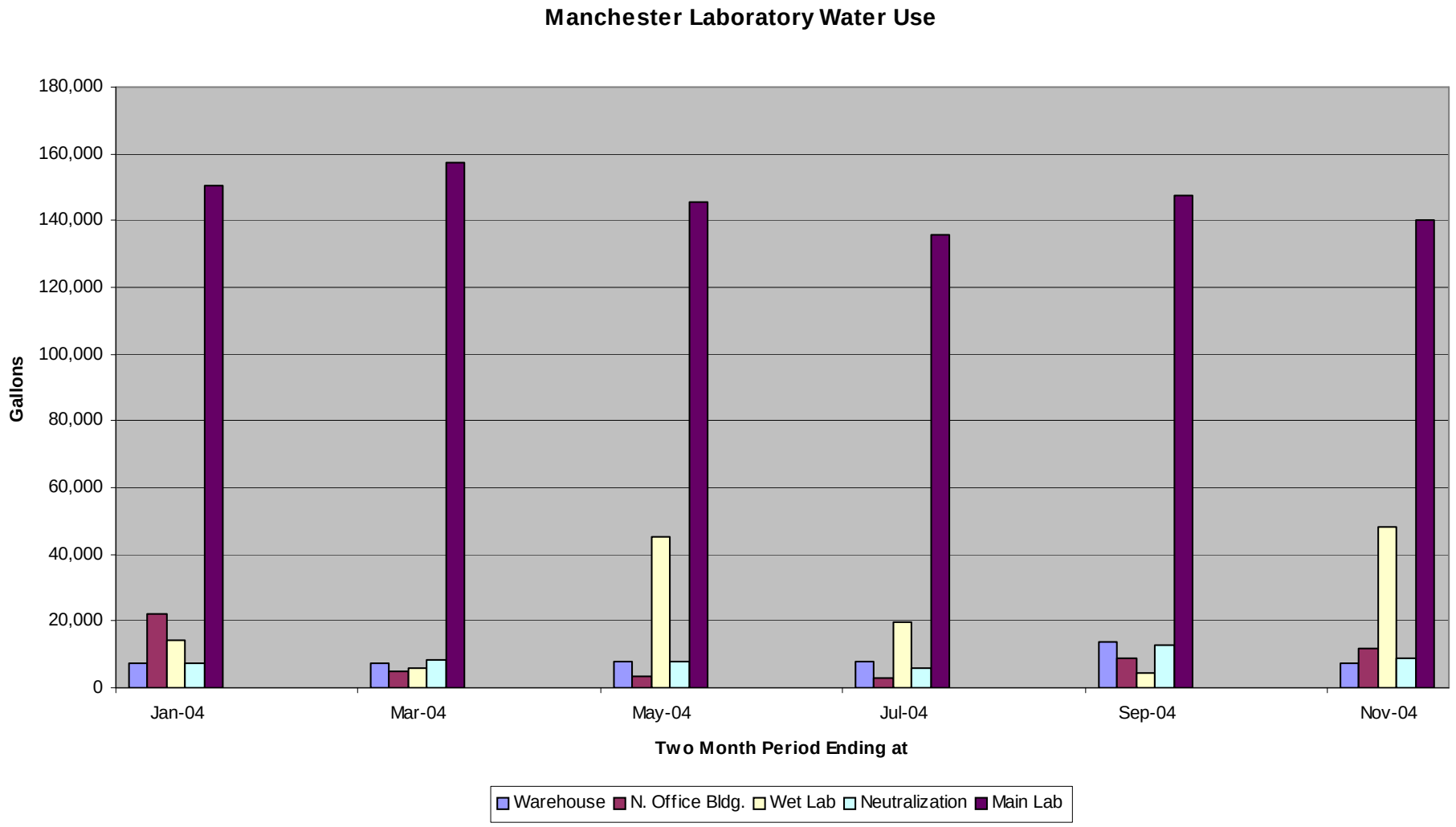
5) **Consolidate and Monitor Water Use Data.** Water use data from each city water supply meter (listed on Table 3) and each internal meter (RO System #1, RO System #2, cooling tower make-up, boiler water make-up, EPA dock, and neutralization system discharge meter) will be recorded monthly by the O&M contractor and reported to the Facility Manager. Water use trends will be monitored by the Facility Manager to identify potential additional saving opportunities, and to identify and resolve unexpected changes in consumption patterns.

# APPENDIX A

## WATER USE AND WATER BALANCE SUPPORTING CALCULATIONS

## Region 10 Manchester Environmental Laboratory

| Major Process | 2004 Consumption (gallons) | Supporting Calculations |
|---|---|---|
| Eyewash flushing | 22,000 | Based on laboratory November 2004 eyewash study. Data are for 2004. Operational changes have reduced flow to 5,200 gallons per year in 2005. |
| Autoclave tempering water | 20,000 | Based on laboratory autoclave study. 664.25 operating hours per year * 0.5 gallons per minute discharge during operation * 60 minutes/hour = 19,928 gallons |
| Cooling tower make-up | 210,000 | Engineering estimate based on instantaneous measured continuous blowdown of 0.5 liters per minute, and assumed 3 cycles of concentration in tower. 0.5 liters/minute * 1 gallon/3.785 liters * 60 minute/hour * 24 hour/day * 365 days/year = 69,432 gallons. 69,432* 3 cycles of concentration (to account for evaporation) = 208,296 gallons. |
| Laboratory water use | 277,000 | Metered discharge flow from meter in neutralization building. 228,950 gallons discharged during 43 weeks in FY 2004. 52/43 * 228,950 = 276,870. |
| RO System #1 reject stream | 34,000 | Based on metered supply to the RO system, 68,180 gallons consumed between June 2004 and June 2005. Assume 50/50 split between reject and permeate streams. Permeate is included in the laboratory water use total above. |
| RO System #2 reject stream | 125,000 | Based on metered permeate flow from the RO system, 125,140 gallons of permeate generated between December 2003 and December 2004. Assume 1 gallon of reject water generated for every gallon of permeate. Permeate is included in the laboratory water use total above. |
| Main laboratory sanitary water and other miscellaneous uses. | 188,715 | Engineering estimate, calculated by difference between the total metered main laboratory water supply and the other metered and estimated flows listed above. 876,715 - 22,000 - 20,000 - 210,000 - 277,000 - 34,000 - 125,000 = 188,715 gallons |
| Main Laboratory (total of the above flows) | 876,715 | Metered total |
| North office building | 54,226 | Metered total |
| Warehouse | 51,391 | Metered total |
| Wet lab | 137,492 | Metered total |
| West annex/neutralization | 51,586 | Metered total |
| **TOTAL** | **1,171,410** | **Sum of metered totals. 876,715 + 54,226 + 51,391 +137,492 + 51,586 = 1,171,410** |


Manchester Laboratory Water Use
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Gallons
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Two Month Period Ending at
Warehouse
N. Office Bldg.
Wet Lab
Neutralization
Main Lab

Manchester Environmental Laboratory
2004 Water Use
All data are in gallons

| Date | Warehouse | North Office Building | Wet Lab | West/Annex Neutralization | Main Lab | Total |
|---|---|---|---|---|---|---|
| Jan-04 | 7,555 | 22,000 | 14,363 | 7,368 | 150,508 | 201,794 |
| Mar-04 | 7,331 | 4,877 | 5,910 | 8,595 | 157,390 | 184,103 |
| May-04 | 7,630 | 3,628 | 45,033 | 7,899 | 145,645 | 209,836 |
| Jul-04 | 7,780 | 3,015 | 19,674 | 6,059 | 135,696 | 172,224 |
| Sep-04 | 13,914 | 8,820 | 4,488 | 12,687 | 147,515 | 187,424 |
| Nov-04 | 7,181 | 11,887 | 48,025 | 8,977 | 139,960 | 216,029 |
| Total 2004 | 51,391 | 54,226 | 137,492 | 51,586 | 876,715 | 1,171,409 |